

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

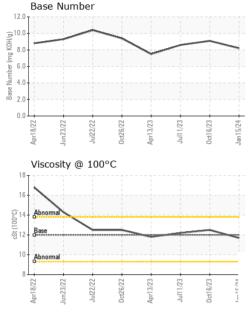
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| TS) | | Apr2022 J | un2022 Jul2022 Oct20 | 22 Apr2023 Jul2023 Oct2023 | Jan2024 | |
|--|--|---|--|--|--|---|
| SAMPLE INFORI | MATION | method | limit/base | current | history1 | history2 |
| Sample Number | | Client Info | | PCA0113587 | PCA0105780 | PCA0100874 |
| Sample Date | | Client Info | | 15 Jan 2024 | 16 Oct 2023 | 11 Jul 2023 |
| Machine Age | mls | Client Info | | 384426 | 379340 | 362543 |
| Oil Age | mls | Client Info | | 5086 | 8263 | 8534 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINAT | ION | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >100 | 18 | 19 | 16 |
| Chromium | ppm | ASTM D5185m | >20 | 0 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 2 | 6 | 5 |
| Lead | ppm | ASTM D5185m | >40 | 0 | 2 | 1 |
| Copper | ppm | ASTM D5185m | >330 | 4 | 4 | 3 |
| Tin | ppm | ASTM D5185m | >15 | 0 | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | ASTM D5185m | 2 | 5 | 4 | 7 |
| Barium | ppm | ASTM D5185m | 0 | 0 | 0 | 0 |
| | | | | | | |
| Molybdenum | ppm | ASTM D5185m | 50 | 69 | 60 | 66 |
| Manganese | | ASTM D5185m ASTM D5185m | 0 | 69 0 | <1 | <1 |
| Manganese Magnesium | ppm | ASTM D5185m ASTM D5185m | 0 950 | 69 0 1041 | <1 929 | <1 1005 |
| Manganese Magnesium Calcium | ppm ppm | ASTM D5185m | 0 950 1050 | 69 0 1041 1363 | <1 | <1 |
| Manganese Magnesium Calcium Phosphorus | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 950 1050 995 | 69 0 1041 1363 1172 | <1 929 1365 932 | <1 1005 1262 1081 |
| Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 950 1050 995 1180 | 69 0 1041 1363 1172 1459 | <1 929 1365 932 1278 | <1 1005 1262 1081 1342 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 950 1050 995 | 69 0 1041 1363 1172 | <1 929 1365 932 | <1 1005 1262 1081 |
| Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 950 1050 995 1180 | 69 0 1041 1363 1172 1459 | <1 929 1365 932 1278 | <1 1005 1262 1081 1342 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon | ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m | 0 950 1050 995 1180 2600 | 69 0 1041 1363 1172 1459 3945 current 4 | <1 929 1365 932 1278 3274 history1 4 | <1 1005 1262 1081 1342 3523 history2 4 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m | 0 950 1050 995 1180 2600 limit/base >25 | 69 0 1041 1363 1172 1459 3945 <u>current</u> 4 6 | <1 929 1365 932 1278 3274 history1 4 6 | <1 1005 1262 1081 1342 3523 history2 4 6 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 950 1050 995 1180 2600 limit/base >25 >20 | 69 0 1041 1363 1172 1459 3945 <u>current</u> 4 6 33 | <1 929 1365 932 1278 3274 history1 4 6 25 | <1 1005 1262 1081 1342 3523 history2 4 6 24 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 950 1050 995 1180 2600 limit/base >25 >20 | 69 0 1041 1363 1172 1459 3945 current 4 6 333 current | <1 929 1365 932 1278 3274 history1 4 6 25 history1 | <1 1005 1262 1081 1342 3523 history2 4 6 24 kistory2 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3 | 69 0 1041 1363 1172 1459 3945 <u>current</u> 4 6 33 33 <u>current</u> 0.8 | <1 929 1365 932 1278 3274 history1 4 6 25 history1 1.1 | <1 1005 1262 1081 1342 3523 history2 4 6 24 kistory2 0.9 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm | ASTM D5185m ASTM D51854 | 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3 >20 | 69 0 1041 1363 1172 1459 3945 <u>current</u> 4 6 33 <u>current</u> 0.8 10.4 | <1 929 1365 932 1278 3274 history1 4 6 25 history1 1.1 12.2 | <1 1005 1262 1081 1342 3523 history2 4 6 24 kistory2 0.9 12.0 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3 | 69 0 1041 1363 1172 1459 3945 <u>current</u> 4 6 33 33 <u>current</u> 0.8 | <1 929 1365 932 1278 3274 history1 4 6 25 history1 1.1 | <1 1005 1262 1081 1342 3523 history2 4 6 24 kistory2 0.9 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D51854 | 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3 >20 | 69 0 1041 1363 1172 1459 3945 <u>current</u> 4 6 33 <u>current</u> 0.8 10.4 | <1 929 1365 932 1278 3274 history1 4 6 25 history1 1.1 12.2 | <1 1005 1262 1081 1342 3523 history2 4 6 24 kistory2 0.9 12.0 |
| Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7615 | 0 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20 >30 | 69 0 1041 1363 1172 1459 3945 <u>current</u> 4 6 33 33 <u>current</u> 0.8 10.4 19.7 | <1 929 1365 932 1278 3274 history1 4 6 25 history1 1.1 12.2 22.0 | <1 1005 1262 1081 1342 3523 history2 4 6 24 history2 0.9 12.0 20.9 |



OIL ANALYSIS REPORT





Certificate L2367

Laboratory

Sample No.

Contact/Location: ED DAVIS - MILLOG